

## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference JFR/C70512WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB 03/03150	International filing date (day/month/year) 22.07.2003	Priority date (day/month/year) 23.07.2002
International Patent Classification (IPC) or both national classification and IPC A61K7/16		
Applicant GLAXO GROUP LIMITED		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 4 sheets, including this cover sheet.  <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of 2 sheets.
3.	This report contains indications relating to the following items:  I <input checked="" type="checkbox"/> Basis of the opinion II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand  09.02.2004	Date of completion of this report  16.08.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Lindner, A  Telephone No. +49 89 2399-8640  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/03150

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-8 as originally filed

**Claims, Numbers**

1-18 filed with telefax on 05.08.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/GB 03/03150**

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-18
	No: Claims	
Inventive step (IS)	Yes: Claims	1-18
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/GB 03/03150

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:  
D1: US-A-2 995 521 (ESTGNARD-BLUARD, JEAN JACQUES) 8 August 1961  
(1961-08-08)
2. Example 13 of D1 discloses an aerosol formulation comprising all the features as presently claimed except for a higher content of non-hydrocarbon propellant (11.9% vs. 8% as presently claimed). As a consequence, the subject-matter as presently claimed is novel (article 33(2) PCT).
3. Moreover, the subject-matter of claims 1-18 involves an inventive step over D1 which represents the closest prior art: D1 relates to self-foaming toothpastes which are filled into conventional metallic tubes (D1: col. 6, l. 29-32). In contrast thereto, the present invention concerns dentifrice formulations which are filled into pressurized containers. It would not appear obvious for the person skilled in the art that an increased proportion of non-hydrocarbon propellant would result in a dentifrice composition that can be applied from a pressurized container. As a consequence, the requirements of article 33(3) PCT are met.

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## CLAIMS

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- 5 1. An aerosol dentifrice formulation comprising water, a particulate abrasive and a propellant, characterised in that the formulation contains 4-14wt % of a propellant which comprises a non-hydrocarbon being 2-8wt % of the formulation and a hydrocarbon propellant being 2-6wt % of the formulation.
- 10 2. An aerosol dentifrice according to claim 1 wherein the non-hydrocarbon propellant comprises dimethylether (DME), a chlorofluorocarbon (CFC), a hydrofluorocarbon (HFC) or a hydrochlorofluorocarbon (HCFC), nitrogen, carbon dioxide, nitrous oxide or compressed air.
- 15 3. An aerosol dentifrice according to claim 2 wherein the non-hydrocarbon propellant comprises dimethylether (DME).
- 20 4. An aerosol dentifrice according to claim 1 wherein the hydrocarbon propellant comprises one or more C<sub>3</sub> to C<sub>5</sub> hydrocarbon (HC) such as propane, n-butane or butane 22.
- 25 5. An aerosol dentifrice according to any one of the above claims which comprises 3-5 wt% propellant providing a pressure of between 25-70 psi.
- 30 6. An aerosol dentifrice formulation being a fluid mixture, comprising water, a liquified gas propellant and a particulate abrasive, characterised in that the particulate abrasive comprises 1-10% by weight of the mixture and has a particle size in the range 5-40 microns and comprises a combination of a more hard and a less hard abrasive.
- 35 7. An aerosol dentifrice according to claim 6, wherein the more hard and less hard abrasive is in a proportion of 1:1-5.
8. An aerosol dentifrice according to any one of the above claims, wherein the particulate abrasive is a silica.

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9. An aerosol dentifrice according to claim 8, wherein the particle size of the abrasive is less than 30 microns.

10. An aerosol dentifrice according to claim 9, wherein the particle size of the abrasive is less than 10 microns.

11. An aerosol dentifrice comprising water, a particulate abrasive and a liquefied gas propellant, characterised in that the formulation contains 4-14wt % of a propellant which comprises a non-hydrocarbon being 2-8wt % of the formulation and a hydrocarbon propellant being 2-6wt % of the formulation, the particulate abrasive comprises 1-10% by weight of the mixture, has a particle size in the range 5-40 microns and comprises a combination of a more hard and a less hard abrasive.

12. An aerosol dentifrice according to any one of the above claims wherein the water comprises 25-50 wt% of the formulation.

13. An aerosol dentifrice according to claim 12, additionally comprising a humectant.

14. An aerosol dentifrice according to claim 13, additionally comprising a suspending agent.

15. An aerosol dentifrice according to claim 14, additionally comprising a surfactant.

16. An aerosol dentifrice according to any one of the above claims additionally comprising xanthan gum and Zeodent 163.

17. An aerosol dentifrice according to any one of the above claims comprising 45-55 wt% humectant, 0.1-4 wt% suspending agent, 1-5 wt% surfactant, 3-7 wt% abrasive, the remainder being water and 3-5 wt% propellant.

18. An aerosol dentifrice according to any one of the above claims comprising a valved container containing the formulation.